



NUCLEAR REGULATORY COMMISSION

[Docket No. 030-05154; NRC-2013-0009]

**License Amendment Request for Analytical Bio-Chemistry Laboratories, Inc.,
Columbia, Missouri**

AGENCY: Nuclear Regulatory Commission.

ACTION: Environmental assessment and finding of no significant impact.

FOR FURTHER INFORMATION CONTACT: Peter J. Lee, Ph.D., CHP, Health Physicist, Materials Control, ISFSI, and Decommissioning Branch, Division of Nuclear Materials Safety, Region III Office, U.S. Nuclear Regulatory Commission, Lisle, Illinois 60532; telephone: 630-829-9870; fax number: 630-515-1078; email at pjl2@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is considering the issuance of a license amendment to Materials License No. 24-13365-01 issued to Analytical Bio-Chemistry Laboratories, Inc. (the licensee), to authorize the release of the licensee's sanitary lagoon and the surrounding effluent discharge area for unrestricted use. Once released, these areas will no longer be subject to the license, and licensed activities will not be permitted therein. The licensee's facility is located at 7200 E. ABC Lane, Columbia, Missouri, approximately six miles east of Columbia and immediately north of I-70. The site is approximately 56 acres in size and is zoned as planned office, general industrial, and controlled industrial districts in central Boone

County. The NRC has prepared the following environmental assessment (EA) of this proposed license amendment in accordance with the requirements of the National Environmental Policy Act of 1969, as amended (NEPA), and Part 51 of Title 10 of the *Code of Federal Regulations* (10 CFR), "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." Based on this EA, the NRC has concluded that a Finding of No Significant Impact (FONSI) is appropriate. Therefore, the license amendment will be issued following the publication of the EA and FONSI in this notice.

II. Environmental Assessment

The licensee is a contract research organization that conducts research, development, and manufacturing of pharmaceuticals and agricultural chemicals. Operation at the licensee's site began in 1968. The licensee's facility is bounded by residential, agricultural and commercially zoned areas which appear to be in a stable phase of growth. The Missouri Department of Natural Resources (MDNR) issued Construction Permit number 26-1030 on May 15, 1986, authorizing the construction of a single 13,500 square foot surface lagoon with 540 linear feet of 2-inch diameter piping to accommodate an average flow of 10,000 gallons per day. The lagoon, application area and drain field were constructed on the west side of the site and comprised approximately 28 acres. The licensee's sanitary lagoon was operated from 1986 until 2004, at which time the site was connected to the local publicly owned treatment works. During its operating years, the sanitary lagoon served as the sole sewer for the site. It was primarily used for sanitation, but it also received rinsates from laboratories, which contained some radio-labeled compounds, primarily carbon-14. Effluent from the sanitary lagoon was discharged to the site through two systems of pipes overlaying gravel beds. This lagoon system was regulated by MDNR under the National Pollutants Discharge Elimination System (NPDES) permit number MO-0104591. The lagoon was drained in 2011 and backfilled with clean soil in February 2012.

The licensee requested this license amendment in letters dated September 30, 2011; January 3, 2012; March 1, 2012; and October 24, 2012. The licensee has conducted final status surveys of the sanitary lagoon and the surrounding effluent discharge area. The results of these surveys along with other supporting information were provided to the NRC to demonstrate that the criteria in 10 CFR 20.1402 for unrestricted release have been met.

Section 51.30 requires that an EA for proposed actions shall identify the proposed action and describe the need for the proposed action, the alternatives to the proposed action, and the environmental impacts of the proposed action and alternatives as appropriate. In this case, the proposed action is to amend Materials License No. 24-13365-01 issued to the licensee, to authorize the release of the licensee's sanitary lagoon and the surrounding effluent discharge area for unrestricted use. The proposed action is needed in order to make the sanitary lagoon and the surrounding effluent discharge area unrestricted property. The alternative to this proposed action is to keep the sanitary lagoon and the surrounding effluent discharge area under the control of Materials License No. 24-13365-01. The only potential environmental impact that differs between the proposed action and the alternative is the potential radiation and chemical exposure of the public from making the property unrestricted. Therefore, the following EA evaluates the potential environmental impacts from radiation and chemical exposure. It finds that the proposed action to release the sanitary lagoon and the surrounding effluent discharge area for unrestricted use will not have a significant effect on the quality of the human environment and thus that a FONSI, rather than an environmental impact statement, for the proposed action is appropriate.

For the surrounding effluent discharge area of the sanitary lagoon, the licensee elected to demonstrate compliance with the radiological criteria for unrestricted release as specified in section 20.1402 by using the screening value of 12 picocuries per gram (pCi/g) for carbon-14 (C-14) as described in NUREG-1757, "Consolidated Decommissioning Guidance," Volume 1 as the radionuclide-specific derived concentration guideline levels (DCGL) for surface soil. The

areas surrounding the lagoon – the drain field, application field, downslope, creek and sewer line - have been characterized by the licensee. The licensee collected soil samples in a biased manner to sample the areas with highest expected contamination, with drain field and application area samples taken near the discharge piping, and downslope samples from the surface that would have had the most exposure to the lagoon effluent. The mean concentration of the collected samples was 6 pCi/g, therefore, the actual mean concentration of the areas surrounding the lagoon will be well below the screening value of 12 pCi/g. Also, based on the soil sampling results from the surrounding effluent discharge area of the sanitary lagoon, the high contamination areas were near the discharge piping. Therefore, the remainder of the site is characterized by a very low level of C-14 in the clay soil, which has been effectively immobilized near the distribution piping or soil surface, and is expected to continue to diminish in concentration slowly over the coming years, principally through the topographically-driven lateral flow of water. No measurable levels of C-14 in either soil or water are found beneath the clay layer. Since the mean concentration of the effluent discharge area of the sanitary lagoon is well below the section 20.1402 requirement for unrestricted release, the proposed action, with respect to radiation exposure in the effluent discharge area, will not have a significant effect on the quality of the human environment.

For the closure of the sanitary lagoon, the licensee elected to use the Residual Radioactivity Version 6.5 (RESRAD) computer code, with the site-specific parameters to demonstrate compliance with 10 CFR 20.1402 for unrestricted release. In NUREG-1757, the NRC found the use of RESRAD acceptable to estimate radiation doses and risks from residual radioactive materials. The bottom of the lagoon consists of compacted clay, which serves as the liner to contain C-14. The placement of sediment and soil backfill is consistent with Missouri Risk-Based Corrective Action requirements for lagoon closure. Therefore, the contaminant of C-14 is now contained in the lagoon placement and is estimated through the use of RESRAD to have a maximal dose of 0.2 mrem per year. This dose is well below the section 10 CFR

20.1402 unrestricted release limit of 25 mrem per year. Since the dose of the sanitary lagoon is well below the section 20.1402 requirement for unrestricted release, the proposed action, with respect to radiation exposure in the sanitary lagoon, will not have a significant effect on the quality of the human environment.

Nine monitoring wells were installed over time for radiochemical sampling purposes. Wells were placed in the maximally contaminated areas as well as outside the contaminated area and medial to the contaminated area, based on the direction of the water flow. Throughout this area, the soil consists of clay on the top layer, and a layer of shale in most cases underlying the clay, unless the limestone bedrock is directly underneath the clay. Sampling includes wells screened in either clay or shale, as well as some screened simultaneously in both matrices. All measurable levels result from the collection of water samples screened in the clay layer of soil, and none from water samples screened in the shale layer. Results from the various wells were compared to the EPA 40 CFR 141.66, "Maximum Contaminant Levels for Radionuclides" limit of 4 mrem/year, which is equivalent to 2000 pCi/L for C-14. The highest result obtained - 532 pCi/L - was from the most shallow well in the most exposed region consistent with the operation of the lagoon. The mean concentration was 126 pCi/L. Additionally, the site lies within Special Area 1 as defined by the Missouri State Revised Code at 10 CSR 23-3.090. According to this regulation, any well placed in this area must "Set no less than 80 feet of casing, extending not less than 30 feet into bedrock." As a result of this Missouri requirement, the water in the shallow water table is not available for human consumption. Therefore, since, as determined by the water sampling, C-14 contamination is only limited to the shallow water table above the shale layer and since this water is not available for human consumption, the proposed action will not result in any human exposure to groundwater contaminated with C-14. Thus, the proposed action, with respect to radiation in groundwater, will not have a significant effect on the quality of the human environment.

The lagoon site was thoroughly investigated for the presence of any chemical residues.

This included sampling of the lagoon sediment, surrounding area and monitoring wells. The scope of the sampling was developed by Foth Infrastructure and Environment in close consultation with the MDNR. With the exceptions of methylene chloride and 2-methyl-4-chlorophenoxyacetic acid (MCPA) found in the sediment and the lagoon floor, all required analytes were either absent or below the acceptable concentrations. The measurable presence of methylene chloride and MCPA were taken into account for the final grading plan. The executed grading plan, including a buffer of soil at least three feet thick over the top of and lateral to any sediment mixture in the sanitary lagoon, was adequate to prevent any unacceptable exposure pathway based on Missouri Risk-Based Corrective Actions. Since there is no unacceptable chemical exposure pathway from the lagoon placement, the proposed action, with respect to chemical exposure, will not have a significant effect on the quality of the human environment.

Based on the above discussion, the Commission has determined under NEPA and the Commission's regulations in Subpart A of 10 CFR Part 51, that the proposed license amendment does not constitute a major Federal action significantly affecting the quality of the human environment and, therefore, an environment impact statement is not required. The Commission concludes that the proposed action to grant a license amendment is authorized by law will not endanger life, property, or the common defense and security and is otherwise in the public interest as it will allow the licensee to release its sanitary lagoon and the surrounding effluent discharge area for unrestricted use.

The staff consulted with the MDNR, and the MDNR had no comments on the proposed license amendment.

III. Finding of No Significant Impact

The NRC has prepared this EA in support of the proposed action. On the basis of this EA, the NRC finds that there are no significant environmental impacts from the proposed action,

and that preparation of an environmental impact statement is not warranted. Accordingly, the NRC has determined that a Finding of No Significant Impact is appropriate.

IV. Further Information

Documents related to this action, including the application for the license amendment and supporting documentation, are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, you can access the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The references related to this Notice and, if applicable, their ADAMS accession numbers are:

1. Analytical Bio-Chemistry Laboratories, Inc., Licensee amendment request and supplemental information, September 30, 2011 (ML112770525); January 3, 2012 (ML120060510); March 1, 2012 (ML120650756); October 24, 2012 (ML12303A009);
2. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination,"
3. Code of Federal Regulations, Title 10, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions,"

4. NUREG-1757, "Consolidated Decommissioning Guidance,"
5. RESRAD, Environmental Assessment Division, Argonne National Laboratory.

If you do not have access to ADAMS, or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, 301-415-4737, or by email to pdr.resource@nrc.gov. These documents may also be viewed electronically on the public computers located at the NRC's PDR, O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852. The PDR reproduction contractor will copy documents for a fee.

Dated at Lisle, Illinois, this 11th day of January, 2013.

For the Nuclear Regulatory Commission,

Christine A. Lipa, Chief
Materials Control, ISFSI,
and Decommissioning Branch
Division of Nuclear Materials Safety
Region III

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